

REMARKS

Applicant thanks the Examiner for the thorough examination of the application. No new matter is believed to be added to the application by this Amendment.

Status Of The Claims

Claims 1-13 are pending in the application. Support for the amendments to claim 1 is found in the specification at page 5, lines 18-19. Support for the amendments to claim 3 is found on page 12, lines 20-26 of the specification. Claim 7 finds support at page 6, line 7 of the specification. Claim 8 finds support at page 6, lines 27-28 of the specification. Claim 9 finds support at page 13, lines 6-7 of the specification. Claims 10 and 11 find support at pages 8 and 9 of the specification. Claims 12 and 13 find support at page 3, lines 2-6 of the specification.

Rejections Based On Melancon (And Schmidt)

Claims 1 and 6 are rejected under 35 U.S.C. §102(e) as being anticipated by Melancon (U.S. Patent 6,730,397). Claim 2 is rejected under 35 U.S.C. §103(a) as being obvious over the single reference of Melancon. Claims 3, 4 and 6 are rejected under 35 U.S.C. §103(a) as being obvious over Melancon in view of Schmidt (U.S. Patent 5,248,739). Claim 5 is rejected under 35 U.S.C. §103(a) as being obvious over Melancon in view of Schmidt and De Paulo (U.S. Patent 3,509,241). Claims 1-6 are rejected under 35 U.S.C. §103(a) as being obvious over Schmidt in view of Melancon. Applicant traverses.

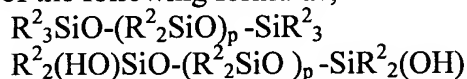
The Present Invention And Its Advantages

The present invention pertains to a peroxide-curable silicon adhesive formulation that shows excellent results without relying upon urea chemistry. The present invention gives an adhesive that does not leave any adhesive residue after it is peeled off even after having been aged at 280 °C. Please see the present specification at page 27, Table 1, Examples 1-5. To attain this non-residue effect, a specific combination of a silicone matrix with a hindered amine is necessary.

The hindered amine is not all that is needed to attain the effect. For example, if a matrix polymer is not resistant to a temperature as high as 280°C, it cannot maintain cohesive strength even if a hindered amine is contained therein. Thus, one of the important aspects of the present invention is a specific combination of a silicone matrix polymer and a stabilizer.

The present invention has many embodiments, and a typical embodiment can be found in instant claim 1:

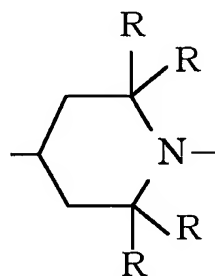
A peroxide curable silicon adhesive composition comprising
20 to 80 parts by weight of a diorganopolysiloxane (A), represented by any one of the following formulae,



wherein R^2 may be the same with or different from each other and is a hydrocarbon group having 1 to 10 carbon atoms, and p is such a number that a viscosity at 25 °C of component (A) is 500 mPa·s or higher,

80 to 20 parts by weight of a polyorganosiloxane (B) comprising $R^1_3SiO_{0.5}$ unit and SiO_2 unit in a molar ratio of the $R^1_3SiO_{0.5}$ unit to the SiO_2 unit of from 0.6 to 1.7, wherein R^1 is a monovalent hydrocarbon group having 1 to 10 carbon atoms,

0.01 to 1.0 part by weight, based on a total of (A) and (B) of 100 parts by weight, of a hindered amine moiety (C) having the molecular structure represented by the following formula,



wherein R is a monovalent hydrocarbon group having 1 to 6 carbon atoms,
and

0.1 to 5.0 parts by weight, based on a total of (A) and (B) of 100 parts by weight, of an organic peroxide (D).

Distinctions Of The Invention Over The Cited Art

Melancon pertains to silicone pressure sensitive adhesives formed from a polydiorganosiloxane polyurea copolymer and a silicone tackifying resin with little or no silanol Si-OH (see Melancon at column 1, lines 35-40). Melancon at column 13, lines 9-10 discusses using hindered amine light stabilizers (HALS), and at column 18 lists TINUVIN 328 and TINUVIN 292 (Ciba) as examples.

Melancon fails to disclose using a diorganopolysiloxane instead of a urea-containing copolymer. Melancon also fails to disclose a polymer for high temperature applications. Melancon additionally fails to disclose the viscosities set forth in the claims of the present invention.

In Melancon, a pressure sensitive adhesive is aged at 70 °C as is described at column 16, line 68. Further, Melancon only teaches that a HALS may be added to stabilize an adhesive against UV degradation. Melancon fails to suggest using the diorganopolysiloxane (A) in place of organopolysiloxane /polyurea copolymer.

Therefore, the present claim 1 is novel and unobvious over Melancon and any art combination based on Melancon.

Also, instant claim 3 recites a diorganopolysiloxane (A') having a viscosity of from 1,000 mPa·s to 100,000 mPa·s in a 30 wt% solution of toluene. This means that a diorganopolysiloxane (A') has sufficient molecular weight to have the claimed range of viscosity.

As described above, a combination of a silicone matrix and a hindered amine is an important aspect of the present invention. The diorganopolysiloxane (A') with the claimed range of viscosity gives such a polymer network whose cohesive force is maintained by the hindered amine. A polymer network obtained from a diorganopolysiloxane having a lower viscosity than 1,000 mPa·s will not be too weak to maintain cohesive strength.

Schmidt teaches that the polydiorganosiloxane (B) can have a wide range of viscosity depending on the type of PSA. That is, the component (B) has a viscosity at 25°C ranging from 50 mPa·s to 100 kilo Pa·s, i.e., 100,000,000 mPa·s. See Schmidt at column 6, lines 3-4. As a result, Schmidt offers no motivation for a skilled person to select a specific viscosity range, such as is set forth in the present invention.

Also, as discussed above, Melancon only teaches that a HALS may be added to stabilize an adhesive against UV degradation.

As a result, Melancon clearly fails to anticipate or suggest the present invention. Any combination of prior art including Melancon and Schmidt would fail to motivate one having ordinary skill in the art to produce a claimed embodiment of the present invention. A *prima facie* case of obviousness has thus not been made over claims of the present invention.

Further, even if one assumes *arguendo* that the cited art is sufficient to allege obviousness, this obviousness would be rebutted by the unexpected results of the present invention. These results are typified by the results for adhesion residue and aging time set forth in Table 1 at page 27 of the specification. These result show that the present invention gives an adhesive that does not leave any adhesive residue after it is peeled off even after having been aged at 280 °C. The advantages of the present invention are thus clear.

These rejections are overcome and withdrawal thereof is respectfully requested.

Information Disclosure Statement

The Examiner is thanked for considering the Information Disclosure Statement filed February 26, 2004 and for making the initialed PTO-1449 form of record in the application in the Office Action mailed January 18, 2005.

Foreign Priority

The Examiner has acknowledged foreign priority and indicated that a certified copy of the priority document has been received, most recently in the Office Action mailed July 7, 2005.

Conclusion

The Examiner's rejections have been overcome. No issues remain. The Examiner is accordingly respectfully requested to place the application in condition for allowance and to issue a Notice of Allowability.

Application No. 10/721,276
Amendment dated October 7, 2005
Reply to Office Action of July 7, 2005

Docket No.: 4710-0104P

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Robert E. Goozner, Ph.D. (Reg. No.42,593) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Dated: October 7, 2005



Respectfully submitted,

By  _____

Andrew D. Meikle
Registration No.: 32,868
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Rd
Suite 100 East
P.O. Box 747 Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant